

Snow fell part of this time in the north, and where the precipitation was in the form of rain the temperature was not much above the freezing point. Over a large area there was no sunshine whatever on the 7th, 8th, 9th, and 10th.

The only instance of excessive precipitation at the rate of 2.5 inches or more in 24 consecutive hours was at Hannibal, Mo., where 2.99 inches occurred on the 3d. The average number of rainy days was 9.

*Snow.*—Some snow fell as far south as Springfield, Ill., but amounts of 5 inches or more occurred only north of northern Iowa. The greatest monthly snowfall was 23 inches, at Keopenick, Wis. The average amount for the district was 1.8 inches.

#### RIVERS.

The following reports on conditions during the month are given:

By James H. Spencer, official in charge of Dubuque district:

There were no serious floods in the district. There were, however, the usual spring freshets in the upper Wisconsin Valley. About the 3d an ice jam occurred near Heights, Wis., between Wausau and Merrill, and caused the water to overflow the tracks of the Chicago, Milwaukee & St. Paul Railway, making it unsafe for 600 to 800 feet. About 150 feet of track was washed out. The loss was approximately \$3,000. The water in the upper Wisconsin was high all the month, but light rainfall prevented a flood of any consequence.

By J. M. Sherier, official in charge of Davenport district:

Good stages of water in the Mississippi prevailed throughout the Davenport district; the highest gauge readings occurred about the middle of the month. The highest stage at Davenport was 10.4 feet, on the 17th and 18th.

By Clarence J. Root, section director of Illinois:

The Illinois River was above flood stage throughout the month, and the high water delayed farming operations in the bottoms. The highest stage in the upper Illinois occurred on the 1st; the lowest, on the 30th. The levees at Naples and Meredosia broke on the 3d, flooding parts of those towns and 10,000 acres of farm land. The flood at Cairo broke all records, the highest stage being 54.7 feet. The city proper, although entirely surrounded by water, was saved by the levees and the excellent work of the militia and citizens. The factory district to the north was flooded.

By B. L. Waldron, official in charge of Hannibal district:

A slight flood occurred in the Mississippi River from Quincy to below Hannibal during the last few days of March and first few days of April.

At Quincy the water was above the flood stage from March 30 to April 2 and the highest was 14.5 feet on March 31. At Hannibal the water was above the flood stage from the evening of March 28 to April 5. The highest was 14.3 feet on March 31 and April 1. Advisory warnings were issued on March 26 and flood warnings on March 28, 29, 30, and 31. The crest of the flood was forecasted to within 0.2 of a foot. There was no material damage to property or crops nor to farm land by erosion or deposit. The warnings were of some value. Live stock that was on islands or low bottom lands was moved to places of safety and considerable quantities of cordwood and lumber were moved or made fast. The amount of property saved probably amounted to \$1,500 to \$2,000.

#### MISCELLANEOUS.

Slightly more than the usual amount of sunshine prevailed over most of the district. The average number of clear days was 15; partly cloudy, 6; cloudy, 9. The prevailing wind at more than two-thirds of the stations was either northwest, southeast, or south, all three directions being reported about the same number of times. The highest velocity reported was 46 miles from the south, at St. Paul, Minn., on the 30th.

#### ERRATA.

Report for March, 1913: North Dakota data; Lakota; minimum temperature published  $-17^{\circ}$  should be  $-25^{\circ}$ ; greatest 24-hour precipitation published 0.12 should be 0.50; total snowfall published 13.4 should be 13.0. McLeod; maximum temperature published  $55^{\circ}$  should be  $56^{\circ}$ ; date, 8. Mayville; monthly mean temperature published  $17.9^{\circ}$  should be  $18.0^{\circ}$ ; lowest temperature published  $-13^{\circ}$  should be  $-19^{\circ}$ ; date, 2. Milnor; days with 0.01 inch or more precipitation published 2 should be 3. Minot; highest temperature published  $46^{\circ}$  should be  $54^{\circ}$ ; date, 31. Pembina; monthly mean temperature published  $10.0^{\circ}$  should be  $6.4^{\circ}$ ; highest temperature published  $42^{\circ}$  should be  $43^{\circ}$ ; date, 31. Minnesota data; Albert Lea; date of minimum temperature published 28 should be 29. Iowa data; Charles City; monthly mean temperature published  $28.7^{\circ}$  should be  $28.6^{\circ}$ ; departure of the mean temperature from the normal published  $+0.3$  should be  $+0.2^{\circ}$ ; Elma, monthly mean temperature published  $27.1^{\circ}$  should be  $28.0^{\circ}$ ; days with 0.01 or more precipitation published 8 should be 9; Mount Pleasant, total snowfall published 2.6 should be 6.1; Odebolt, number of partly cloudy days published 5 should be 12; number of cloudy days published 12 should be 5; Sioux City, total snowfall published 4.2 should be 4.6; Stockport, monthly mean temperature published  $34.0^{\circ}$  should be  $34.2^{\circ}$ ; days with 0.01 or more precipitation published 11 should be 12; Waverly, date of highest temperature published 18 should be 30.

#### REPORT ON FLOODS OCCURRING OR IN PROGRESS IN THE CAIRO, ILL., DISTRICT DURING THE MONTH OF APRIL, 1913.

By R. T. LINDLEY, Local Forecaster.

Heavy precipitation was prevalent over the Ohio and Wabash portions of this district from March 23 to 27, with total amounts reported during the period as follows: Cairo, 4.61; Paducah, Ky., 5.24; Shawneetown, Ill., 5.37; Mount Carmel, Ill., 9.16. Even greater amounts than that at Mount Carmel were reported from stations in Ohio and Indiana, draining into tributaries of the Wabash and the Ohio Rivers. The precipitation over the upper Ohio and its tributaries was sufficiently heavy to produce a crest stage in the Ohio at Cincinnati closely approaching that of 1884, the highest of record. The unprecedented stage in the Wabash at Mount Carmel, approximately 3 feet above any previous record there, was sufficient to create a crest in the Ohio flood higher than any previously recorded within the confines of this district.

It was realized that unprecedented stages would be reached in this district, and early in the progress of the flood warnings were distributed to that effect. No effort was spared in reaching all portions of the district affected, the office was kept open night and day, reports were received and bulletins issued on three successive Sundays, and no member of the office force stinted effort in an endeavor to inform and aid the public. That the effort was not unavailing is indicated—at Paducah, as an example, it is estimated that warnings issued from this office saved property to the value of \$1,000,000. No human lives were lost as a direct cause of the flood, but one life was lost, that of an intoxicated man, through falling out of a boat in Paducah.

A just approximation of the damages by flood in this district is very difficult to reach, but it would probably

exceed \$5,000,000. Railroads were very heavy losers; Shawneetown, Ill., about 2,000 population, was inundated; Caseyville, Ky., a town of about 700, was washed away; numerous small towns suffered staggering losses; much live stock and corn were lost; in all, perhaps \$3,500,000 may be considered a conservative estimate for this Ohio River district. A considerable acreage of wheat across the river from Cairo in Missouri was flooded and killed, the flood waters extending inland for a distance of about 21 miles. Throughout this district on a basis of \$5 per acre the losses would approximate the sum of \$750,000. The damage to farm lands through washing

may be estimated at \$150,000. Enforced suspension of business and the necessity of caring for refugees have been important items of expenditure; 1,000 people were cared for at Paducah through a period of about three weeks; a considerable portion of the population of Shawneetown was given assistance, and refugees from that district were yet being cared for when I visited the place May 2; coal mines were flooded at Harrisburg, Ill., and the full resumption of activities has not yet been realized. The money value of losses by enforced suspension of business, together with care of refugees, will probably amount to \$500,000.